

IN THE CLAIMS:

1 1. (Currently Amended) An intermediate network device for use within a computer net-
2 work having a server configured to provide one or more data streams to a client, each
3 stream having a corresponding bandwidth, the network device comprising:

4 means for determining network traffic characteristics sufficient to identify a
5 stream from the server to the client;

6 a packet classification engine for snooping on Real Time Streaming Protocol
7 (RTSP) response messages for determining the bandwidth of the stream; and

8 a resource reservation protocol (RSVP) transmitter proxy configured to reserve
9 resources within the computer network on behalf of the server for allocation to the
10 stream.

1 2.(original) The intermediate network device of claim 1 wherein the RSVP transmitter
2 proxy is configured to generate and send one or more RSVP Path messages on behalf of
3 the server, the one or more RSVP Path messages containing the network traffic character-
4 istics and the bandwidth of the stream.

1 3. (original) The intermediate network device of claim 2 wherein the RSVP transmitter
2 proxy is configured to terminate RSVP Reservation (Resv) messages that are sent to the
3 server.

1 4. (original) The intermediate network device of claim 3 wherein the RSVP transmitter
2 proxy is configured to generate and send one or more RSVP Path Teardown (PathTear)
3 messages on behalf of the server for releasing the reserved resources allocated to the
4 stream.

1 Claims 5-8 (Canceled).

1 9. (Previously Presented) The intermediate network device of claim 1 wherein the packet
2 classification engine is configured to extract the bandwidth of the stream from one or
3 more messages whose contents are organized at least in part in accordance with the Ses-
4 sion Description Protocol (SDP) specification standard.

1 10. (original) The intermediate network device of claim 9 further comprising a session
2 manager configured to store the network traffic characteristics and bandwidth of the
3 stream.

1 11. (original) The intermediate network device of claim 10 wherein the stream has an
2 RTSP state and the session manager includes one or more state machine engines config-
3 ured to maintain the RTSP state of the stream.

1 12. (original) The intermediate network device of claim 2 wherein
2 the client has a network layer address and a transport layer port for use in receiv-
3 ing the stream from the server,
4 the server has a network layer address and a transport layer port for use in sending
5 the stream to the client, and
6 the network traffic characteristics include the client's network layer address and
7 transport layer port and the server's network layer address and transport layer port.

1 13. (original) The intermediate network device of claim 12 wherein
2 the stream uses a given transport layer protocol, and
3 the network traffic characteristics include the given transport layer protocol.

1 14. (original) The intermediate network device of claim 13 wherein the RSVP Path mes-
2 sages generated and sent by the RSVP transmitter proxy on behalf of the server include a
3 session object containing the client's network layer address and transport layer port and
4 the transport layer protocol associated with the stream.

1 15. (original) The intermediate network device of claim 14 wherein the RSVP Path mes-
2 sage includes a sender template object containing the server's network layer address and
3 transport layer port associated with the stream.

1 16. (original) The intermediate network device of claim 15 wherein the RSVP Path mes-
2 sage includes a sender Tspec object containing the bandwidth of the stream.

1 17. (Previously Presented)An intermediate network device for use within a computer net-
2 work having a server configured to provide one or more data streams to a client, each
3 stream having a corresponding bandwidth, the intermediate network device comprising:
4 means for determining traffic characteristics sufficiently to identify a stream from
5 the server to the client;
6 means for determining the bandwidth of the stream;
7 a resource reservation protocol (RSVP) transmitter proxy configured to reserve
8 resources within the computer network on behalf of the server for allocation to the stream
9 and to generate and send one of more RSVP Path messages on behalf of the server, the
10 one or more RSVP Path messages containing the network traffic characteristics and the
11 bandwidth of the stream, and means for obtaining a differentiated services codepoint
12 (DSCP) value that is based on the bandwidth of the stream.

1 18. (original) The intermediate network device of claim 17 wherein the RSVP transmitter
2 proxy is configured to load the DSCP into the RSVP Path message generated and sent on
3 behalf of the server.

1 19. (original) The intermediate network device of claim 18 wherein the RSVP Path mes-
2 sage includes a DCLASS object containing the DSCP.

1 20. (Previously Presented) A method for providing one or more data streams from a
2 server to a client, each stream having a corresponding bandwidth, the method comprising:

3 receiving a message from a client to a server,
4 determining network traffic characteristics sufficient to identify a stream from the
5 server to the client;
6 determining the bandwidth of the stream; and
7 sending via a resource reservation protocol (RSVP) transmitter proxy, messages
8 to nodes along a data path from the server to the client to reserve resources within the
9 computer network on behalf of the server for allocation to the stream.

1 21. (Previously Presented) The method of claim 20 wherein the message from the client
2 is an RTSP Describe Request.

1 22. (Previously Presented) A method for operating a router, comprising:

2 receiving a message from a client, the message directed to a server, the client
3 message requesting that the server begin sending a traffic flow to the client;
4 receiving a response message from the server, the response message responding to
5 the message from the client;
6 transmitting, in response to the message, a resource reservation request message
7 (RSVP request message) to the client, the RSVP message establishing a path to the client;
8 receiving a RSVP reply message from the client, the RSVP reply message reserv-
9 ing resources for the requested traffic flow;
10 receiving a data message of the traffic flow from the server; and
11 transmitting the data message of the traffic flow with a resource reservation indi-
12 cia in the data message, the resource reservation indicia to direct the data message to
13 travel along the reserved resources.

1 23. (Previously Presented) The method of claim 22, further comprising:

2 reading a message received by the router from a computer network in order to de-
3 termine if the message is from a client, and if the message requests that the server send a
4 traffic flow to the client.

1 24. (Previously Presented) The method of claim 22, further comprising:

2 reading a message received by the router from the server in order to determine if
3 the message is a response to a client request for a traffic flow.

1 25. (Previously Presented) The method of claim 22, further comprising:

2 reading from messages received by the router parameters of a traffic flow, the
3 traffic flow requested by the client for the server to transmit to the client.

1 26. (Currently Amended) A method for operating a router, comprising:

2 receiving a first message from a client, ~~from a computer network in order to de-~~
3 ~~termine if the first message is from the client, the first message directed to a server, the~~
4 ~~first message requesting that the server begin sending a traffic flow to the client if the~~
5 ~~first message requests that the server send the traffic flow to the client , the first message~~
6 directed to a server to request a traffic flow from the server to the client;

7 determining a sequence number of the first message;

8 reading a second message ~~received by the router~~ from the server in order to de-
9 termine if the message is a response to the first message, and determining if the second
10 message is a response to the first message by checking a client request for a traffic flow,
11 ~~the determining in response to discovering the a~~ sequence number in the second message;

12 reading from the first message and the second message at least one parameter of
13 [[a]] the traffic flow, the traffic flow requested by the client for the server to transmit to
14 the client;

15 ~~receiving a response message from the server, the response message responding to~~
16 ~~the message from the client;~~

17 writing the at least one parameter into a resource reservation request message
18 (RSVP request message);

19 transmitting, in response to the second message, ~~a resource reservation request~~
20 ~~message~~ (the RSVP request message [[-]]) to the client, the RSVP message establishing
21 a path to the client;
22 receiving a RSVP reply message from the client, the RSVP reply message reserv-
23 ing resources for the requested traffic flow;
24 receiving a data message of the traffic flow from the server; and
25 transmitting the data message of the traffic flow with a resource reservation indi-
26 cia in the data message, the resource reservation indicia to direct the data message to
27 travel along the reserved resources; ~~and~~
28 ~~writing the at least one parameter into the RSVP request message.~~

1 27. (Previously Presented) The method of claim 22, further comprising:
2 using a Resource reSerVation (RSVP) protocol to learn the contents of messages
3 received by the router.

1 28. (Previously Presented) The method of claim 22, further comprising:
2 connecting the router one hop away from the server;
3 receiving first messages by the router, the first messages originating from com-
4 puters connected to the Internet and directed to the server; and
5 receiving second messages by the router, the second messages originating from
6 the server and directed to clients connected to the Internet.

1 29. (Previously Presented) A router, comprising:
2 means for receiving a message from a client, the message directed to a server, the
3 client message requesting that the server begin sending a traffic flow to the client;
4 means for receiving a response message from the server, the response message
5 responding to the message from the client;

6 means for transmitting, in response to the message, a resource reservation request
7 message (RSVP request message) to the client, the RSVP message establishing a path to
8 the client;

9 means for receiving a RSVP reply message from the client, the RSVP reply mes-
10 sage reserving resources for the requested traffic flow;

11 means for receiving a data message of the traffic flow from the server; and

12 means for transmitting the data message of the traffic flow with a resource reser-
13 vation indicia in the data message, the resource reservation indicia to direct the data mes-
14 sage to travel along the reserved resources.

1 30. (Previously Presented) The router of claim 29, further comprising:

2 means for reading a message received by the router from a computer network in
3 order to determine if the message is from a client, and if the message requests that the
4 server send a traffic flow to the client.

1 31. (Previously Presented) The router of claim 29, further comprising:

2 means for reading a message received by the router from the server in order to
3 determine if the message is a response to a client request for a traffic flow.

1 32. (Previously Presented) The router of claim 29, further comprising:

2 means for reading from messages received by the router parameters of a traffic
3 flow, the traffic flow requested by the client for the server to transmit to the client.

1 33. (Currently Amended) A router, comprising:

2 means for receiving a first message from a client, ~~from a computer network in or-~~
3 ~~der to determine if the first message is from the client, the first message directed to a~~
4 ~~server, the first message requesting that the server begin sending a traffic flow to the cli-~~
5 ~~ent if the first message requests that the server send the traffic flow to the client , the first~~
6 message directed to a server to request a traffic flow from the server to the client;

7 means for determining a sequence number of the first message;
8 means for reading a second message ~~received by the router~~ from the server in or-
9 der to determine if the message is a response to the first message, and determining if the
10 second message is a response to the first message by checking a client request for a traf-
11 fic flow, the determining in response to discovering the a sequence number in the second
12 message;
13 means for reading from the first message and the second message at least one pa-
14 rameter of ~~[[a]]~~ the traffic flow, the traffic flow requested by the client for the server to
15 transmit to the client;
16 ~~means for receiving a response message from the server, the response message re-~~
17 ~~sponding to the message from the client;~~
18 means for writing the at least one parameter into a resource reservation request
19 message (RSVP request message);
20 means for transmitting, in response to the message, ~~a resource reservation request~~
21 ~~message~~ ~~(the~~ RSVP request message ~~[[]]~~) to the client, the RSVP message establishing a
22 path to the client;
23 means for receiving a RSVP reply message from the client, the RSVP reply mes-
24 sage reserving resources for the requested traffic flow;
25 means for receiving a data message of the traffic flow from the server; and
26 means for transmitting the data message of the traffic flow with a resource reser-
27 vation indicia in the data message, the resource reservation indicia to direct the data mes-
28 sage to travel along the reserved resources; ~~and~~
29 ~~means for writing the at least one parameter into the RSVP request message.~~

1 34. (Previously Presented) The router of claim 22, further comprising:

2 means for using a Resource reSerVation (RSVP) protocol to learn the contents of
3 messages received by the router.

1 35. (Previously Presented) The method of claim 29, further comprising:

2 means for connecting the router one hop away from the server;
3 means for receiving first messages by the router, the first messages originating
4 from computers connected to the Internet and directed to the server; and
5 means for receiving second messages by the router, the second messages originat-
6 ing from the server and directed to clients connected to the Internet.

1 Please add new claims 36 *et al.*

1 36. (New) A method for operating a router; comprising:

2 receiving a first message from a client, the first message directed to a server to re-
3 quest a traffic flow stream from the server to the client;
4 receiving a second message from the server, and determining that the second mes-
5 sage is a response to the first message;
6 reading characteristics from the first message and the second message to identify
7 the stream from the server to the client;
8 snooping the second message to determine a bandwidth of the stream; and
9 reserving resources within a computer network on behalf of the server for alloca-
10 tion to the stream.

1 37. (New) The method of claim 36, further comprising:

2 determining a sequence number of the first message; and
3 checking a sequence number in the second message to determine the second mes-
4 sage is the response to the first message.

1 38. (New) The method of claim 36, further comprising:

2 defining the first message as a Real Time Streaming Protocol (RTSP) request
3 message.

1 39. (New) The method of claim 36, further comprising:

2 defining the second message as an RTSP response message.

1 40. (New) A router; comprising:

2 means for receiving a first message from a client, the first message directed to a
3 server to request a traffic flow stream from the server to the client;

4 means for receiving a second message from the server, and determining that the
5 second message is a response to the first message;

6 means for reading characteristics from the first message and the second message
7 to identify the stream from the server to the client;

8 means for snooping the second message to determine a bandwidth of the stream;
9 and

10 means for reserving resources within a computer network on behalf of the server
11 for allocation to the stream.

1 41. (New) The router of claim 40, further comprising:

2 means for determining a sequence number of the first message; and

3 means for checking a sequence number in the second message to determine the
4 second message is the response to the first message.

1 42. (New) The router of claim 40, further comprising:

2 means for defining the first message as a Real Time Streaming Protocol (RTSP)
3 request message.

1 43. (New) The router of claim 40, further comprising:

2 means for defining the second message as an RTSP response message.

1 44. (New) A router; comprising:

2 a packet frame receiver to receive a first message from a client, the first message
3 directed to a server to request a traffic flow stream from the server to the client;

4 the packet frame receiver further configured to receive a second message from the
5 server;

6 a traffic scheduler configured to determine that the second message is a response
7 to the first message, and to read characteristics from the first message and the second
8 message to identify the stream from the server to the client;

9 a packet classification engine for snooping the second message to determine a
10 bandwidth of the stream; and

11 a resource reservation protocol (RSVP) transmitter proxy configured to reserve
12 resources within a computer network on behalf of the server for allocation to the stream.

1 45. (New) The router of claim 44, further comprising:

2 the traffic scheduler further configured to determine a sequence number of the
3 first message, and to check a sequence number in the second message to determine the
4 second message is the response to the first message.

1 46. (New) The router of claim 44, further comprising:

2 the first message is further defined as a Real Time Streaming Protocol (RTSP)
3 request message.

1 47. (New) The router of claim 44, further comprising:

2 the second message is further defined as an RTSP response message.

1 48. (New) A computer readable media, comprising:

2 said computer readable media having instructions written thereon for execution by
3 a router for the method of,

4 receiving a first message from a client, the first message directed to a server to re-
5 quest a traffic flow stream from the server to the client;

6 receiving a second message from the server, and determining that the second mes-
7 sage is a response to the first message;

8 reading characteristics from the first message and the second message to identify
9 the stream from the server to the client;

10 snooping the second message to determine a bandwidth of the stream; and

11 reserving resources within a computer network on behalf of the server for alloca-
12 tion to the stream.

1 49. (New) Electromagnetic signals propagating on a computer network, comprising:
2 said electromagnetic signals carrying instructions for executing on a router the
3 method of,
4 receiving a first message from a client, the first message directed to a server to re-
5 quest a traffic flow stream from the server to the client;
6 receiving a second message from the server, and determining that the second mes-
7 sage is a response to the first message;
8 reading characteristics from the first message and the second message to identify
9 the stream from the server to the client;
10 snooping the second message to determine a bandwidth of the stream; and
11 reserving resources within a computer network on behalf of the server for alloca-
12 tion to the stream.